

## The STS Grand Challenge Workshop Charge

The Second Target Station (STS) Project is a major DOE-BES project that will add a new target and instrument station to the Spallation Neutron Source at Oak Ridge National Laboratory. STS will provide new capabilities to characterize materials with neutrons.

The goals for this workshop are to identify Grand Challenges for the nation in the coming decades, which then can refine the STS science cases that STS will uniquely address. There will be opportunities to re-define the initial instrument suite to optimize highest priority science. Those instruments are part of the STS project. The workshop is the first step towards addressing recommendations from the recent Basic Energy Science Advisory Committee report on new and upgraded BES scientific user facilities (<https://science.osti.gov/-/media/bes/besac/pdf/Reports/Report-to-BESAC-on-New-and-Upgraded-National-User-Facilities-2024-05-28Final.pdf>).

Following the workshop, a virtual public town hall is planned to share the findings with the community, which will also provide opportunities for feedback. A final report is anticipated to be completed by the end of 2024.

Questions that should be discussed at the workshop and addressed in the report include:

- What are the emerging and future grand challenges for the nation over the next 10-20 years focusing on the following five science areas?
  - Quantum Materials
  - Soft Matter & Polymers
  - Materials & Engineering
  - Chemistry & Environmental Science
  - Biological Materials, Systems & Human Health
- How can neutrons uniquely address these grand challenges as compared to other techniques including but not limited to X-rays, electrons, or NMR?
- What are unique science cases connected to the identified grand challenges?
- What instrument suite is required to deliver the science?